Course Duration: 24 hours (3 Days)

AWS GenAI

In this course, you will learn about the fundamental concepts, methods, and strategies for using generative AI. You will gain a solid understanding of use cases where generative AI can provide solutions and address business needs. Additionally, you will learn about practical insights into technologies related to generative AI and how you can use those technologies to solve real-world problems.

Course objectives

In this course, you will learn to:

- Identify the components of a generative AI application and the options to customize a foundation model (FM)
- Describe Amazon Bedrock foundation models, inference parameters, and key Amazon Bedrock APIs
- Describe the architecture patterns that can be used to build generative AI applications
- Identify Amazon Web Services (AWS) offerings that help with monitoring, securing, and governing your Amazon Bedrock applications
- Describe LangChain components such as prompt templates, chains, retrievers, and agents
- Use Amazon Bedrock Agents with Amazon Bedrock Knowledge Bases and Amazon Bedrock Guardrails for agent applications

Prerequisites

- Intermediate proficiency with Python programming language
- AWS Technical Essentials
- AWS Lambda Foundations
- Foundations of Prompt Engineering

KOENIG
step forward

Day-1

Module 1: Generative AI Fundamentals

- Foundational Models and Model Hubs
- Generative AI Project Life cycle
- Generative AI on AWS
- Why Generative AI on AWS?
- Building Generative AI Applications on Amazon Bedrock
- Applications and Use Cases

Module 2: Prompt Engineering

- Prompts and Completions
- Tokens
- Prompt Structure
- Prompt Engineering Best Practices

Handson Activity-1: AWS PartyRock playground

Module 3: Responsible AI Principles and Considerations

- Introduction to responsible AI
- Core dimensions of responsible AI
- Generative AI considerations

Module 4: Security, Governance, and Compliance

- Security overview
- Adverse prompts
- Generative AI security services
- Governance
- Compliance

Module 5: Implementing Generative AI Projects

- Introduction – Generative AI application
- Define a use case
- Select a foundational model
- Improve performance
- Evaluate results
- Deploy the application

Handson Activity-2: Amazon Q

KOENIG
step forward

Day-2

Module 6: Large Language Models (LLMs)

- Large-Language Foundation Models
- Tokenizers
- Embedding Vectors
- Transformer Architecture

Module 7: Amazon Bedrock: Managed Service for Generative AI

- Introduction to Amazon Bedrock
- Architecture and use cases
- How to use Amazon Bedrock

Handson Activity-3: Setting Up Amazon Bedrock Access and Using Playgrounds

Module 8: Amazon Bedrock Foundation Models

- Introduction to Amazon Bedrock foundation models
- Using Amazon Bedrock FMs for inference
- Amazon Bedrock methods
- Data protection and auditability

Day-3

Module 9: Using LangChain

- Optimizing LLM Performance
- Integrating AWS and LangChain
- Using Models with LangChain
- Constructing Prompts
- Structuring Documents with Indexes
- Storing and Retrieving Data with Memory
- Using Chains to Sequence Components

Handson Activity-4: Working with LangChain and Amazon Bedrock

Module 10: Bedrock Agents

- Introduction to Agents
- Use Cases for Agents
- Overview of Amazon Bedrock Agents
- Creating and Deploying Agents
- Creating and Deploying Agents in the AWS Console

- Creating Agent Action Groups
- Action Group Invocation Types
- Amazon Bedrock Agents Integrations
- Deploying and Invoking Agents